

Dry ports/inland terminals and value generation for international cargo and waterways©

XX AAPA Latin American Congress
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Recovering into a 'New Paradigm'

PORT CHALLENGES



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Challenges facing ports

- Economic and functional obsolescence (land values)
- Land constraints
- Lack of capital to expand and modernise
- Inadequate supply chains and infrastructure behind the port in emerging markets
- Need to rationalise assets at the ports to better perform
- Deeper hinterland reach
- Emerging markets share of global GDP to reach 52% in 2015 from 37% in 2000 (IMF)



Factors affecting ports, their development and role

- Shipping and vessel developments
- Ports, logistics, supply chain compression & intermodality
- Regionalisation and port's filling leadership vacuum
- World infrastructure needs



Changes impacting ports and supply chains

Source: Drewry

	2000	2010	2020
Container share - general cargo market:	48%	67%	72%
World port teu throughput:	237 million	542 million	1.1 billion?
Largest container ship (teu):	7,500	14,770	20,000+/-

Impact:

- More infrastructure to increase capacity, velocity and throughput to service larger ships - on the same footprint
- Increased intermodal capability through the supply chain and growth nodes
- Need to address ecological and congestion issues resulting from port usage in their respective hinterlands



Impact of 2009 – rationalising the world fleet

Cause

- Increased scrapping smaller vessels
- Slow steaming, here to stay
- Large order-book remains, mostly ships of 10,000 teu+ size

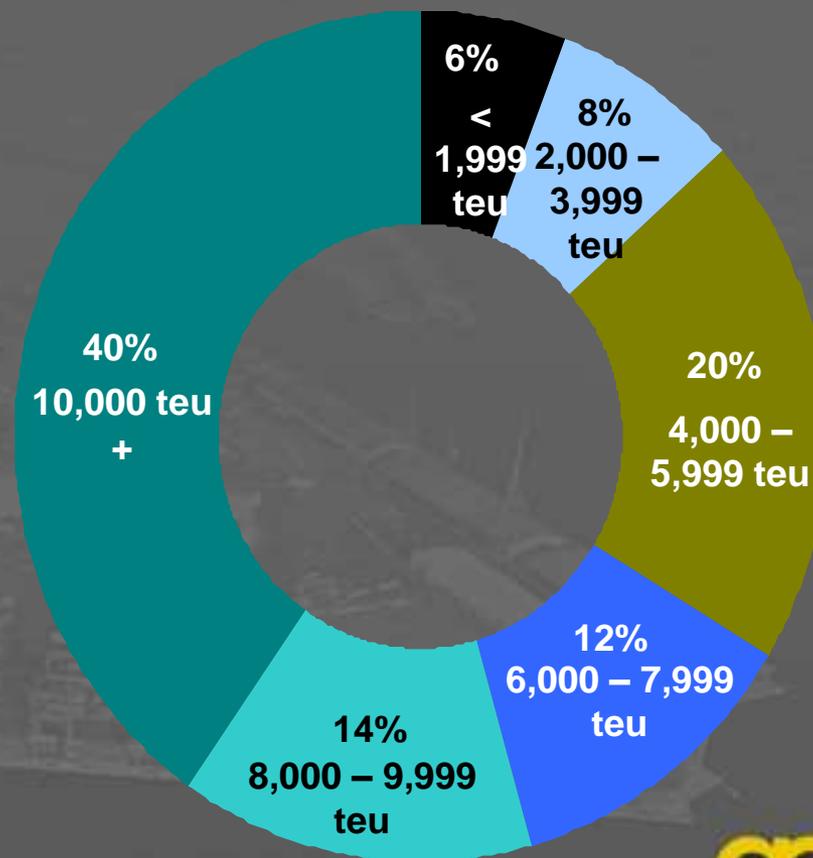
Effect

- growth of the average size of the fleet and more port side capacity
- more intermediary warehousing through the supply chain
- deeper hinterland capability requiring more logistics dedicated property assets



Container ship order book

- Total order book by teu size range (% of teu capacity)
- 54% are 'Big Ships'



Source: Drewry



Big ship economics

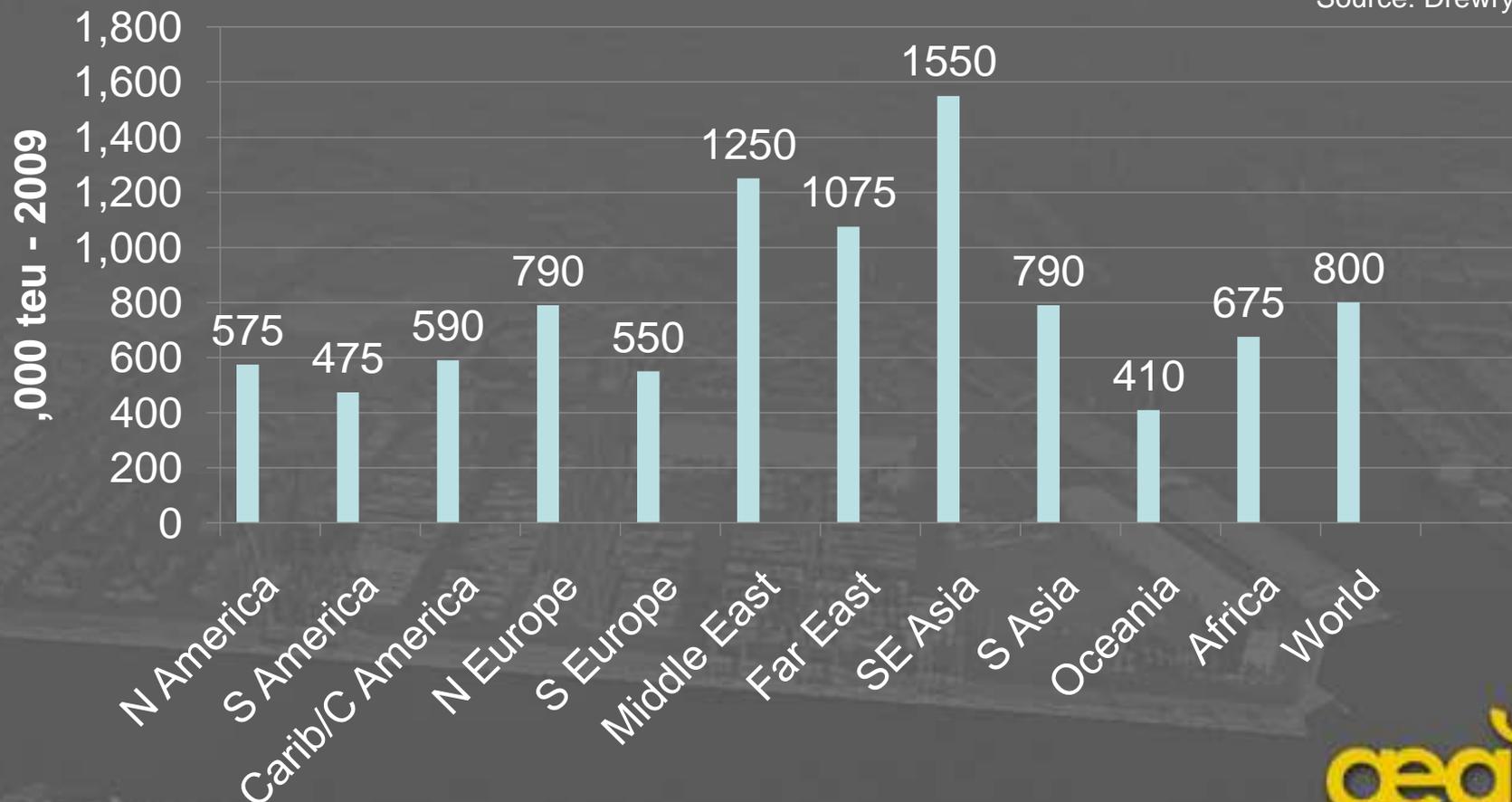
- Work as **part of a global network** - need to reach deep into **the hinterland** to be financially viable
- **Inflexible** - could be serious liability in a downturn; the bigger the ship the larger the risk.
- Increased time in port can quickly outweigh economies of scale; limited in number of port of calls.
- **Need** deeper water, bigger cranes, longer berths, bigger container yards, in short – **more port infrastructure and land in the port and throughout the logistics chain**

All require ports and supply chains designed to handle their capacity, **requiring massive capital.**



Average Throughput per terminal estimates – increasing port capabilities required

Source: Drewry



Quay-line capacity benchmarks are influenced by:

- Size of terminal
- Traffic mix eg, transshipment versus gateway
- Dedicated or common user terminal
- Government policy vis-à-vis congestion and competition

Lowest end of scale: 800 teu/metre of quay per annum

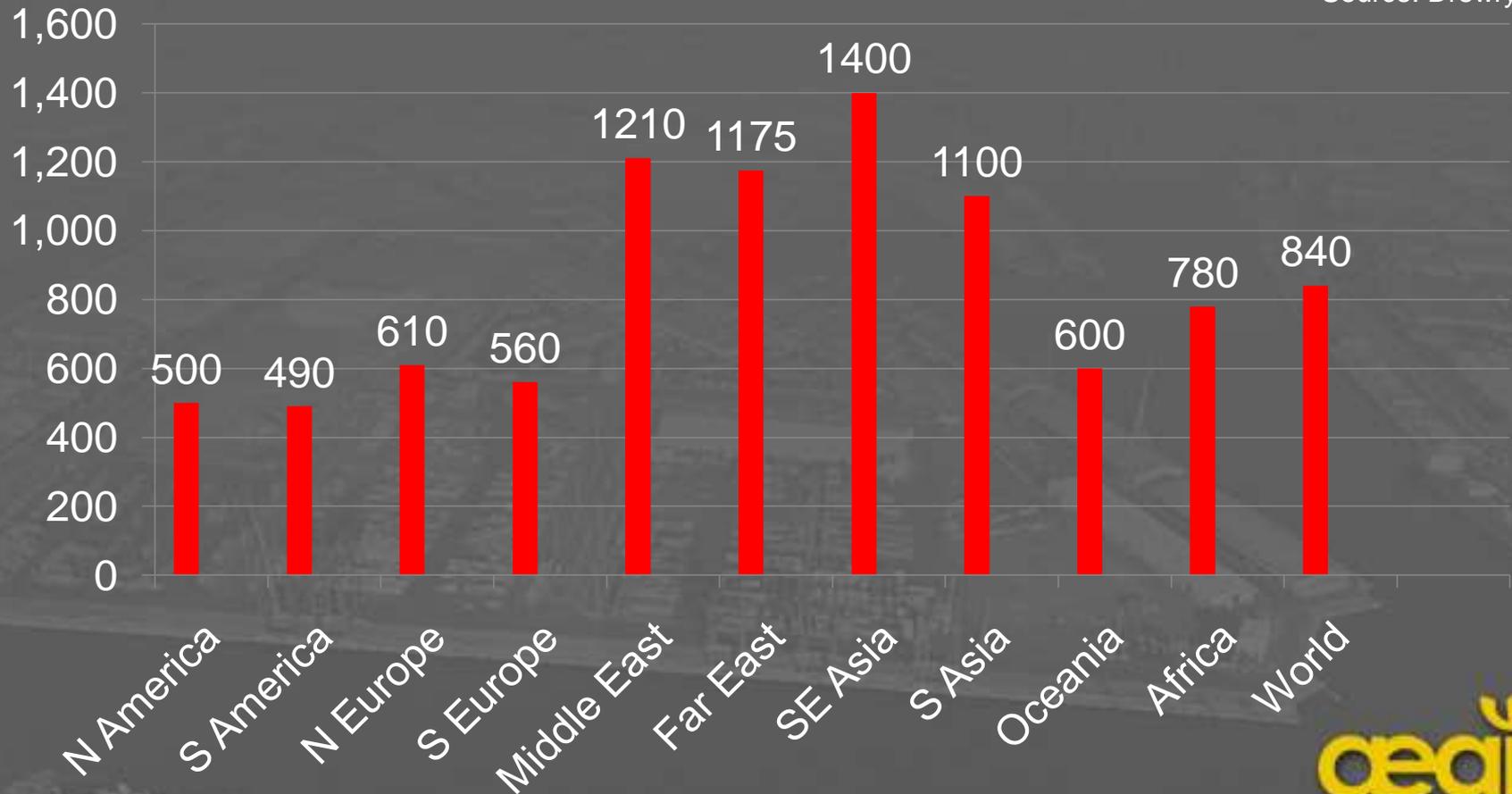
Highest end of scale: 1,700 teu/metre of quay per annum

Message: Existing ports will need to increase capacity and throughput using same footprint – inland terminals to play a role.



Quay-line performance benchmarks teu per metre of quay - 2009

Source: Drewry



Yard capacity benchmarks are influenced by:

- Equipment type eg, RTG versus straddle
- Traffic type/dwell time

Lowest end of scale: 600 teu per hectare (1 over 2 straddle carriers)

Highest end of scale: 2,800 teu per hectare (RMG, 7 high)

Message: How much more by taking all non-operational uses inland, dedicating port to velocity and throughput?



Port property – port's new strategic asset

- 8,000 TEU ship requires 40 hectares to keep container flow inbound smooth; most large ports are land constrained
- Throughput per acre is key to making customers money and satisfied eg, in US about 4,000 – 5,000 TEU/acre yet in Europe and Asia 10,000 TEU/acre and higher is not unusual



It's increasingly about filling a need...

DRY PORTS/INLAND TERMINALS – WHY?



Sea – Land equation

- Over water transport now a commodity
- Shipping networks and terminals better integrated
- Only place for major cost savings and compression of the supply chain is over land
- Inland terminals are a cornerstone to this strategy



Fundamentals characteristics of Inland Terminals (IT's)

- Intermodal terminal (road, rail, barge, air)
- Port and port terminal connection through rail, barge, road through high capacity corridor
- Logistics support services and activities in vicinity of IT through clustering, logistics zones, distribution centres, container depots
- Very large land footprints required – to accommodate rail up to 10 tracks, 800 metres long



Sea – Land Equation



The supply chain today depends on major land banks



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IT Drivers

- Profit
- Compress supply chain for time and cost
- Lack of land or inexpensive land at port
- Lack of capacity for growth at port – need to increase velocity and throughput on same port footprint
- Community congestion and pollution relief
- Deeper penetration into hinterland
- Its all about reach, time, reliability and price



IT Functions

- Satellite terminal for sea ports
- Increase traffic, capacity and value added services off port on cheaper land banks
- Allows for functions no longer economically feasible at port eg, container consolidation and depots
- Transloading area – domestic distribution
- Distribution hub for a major hinterland

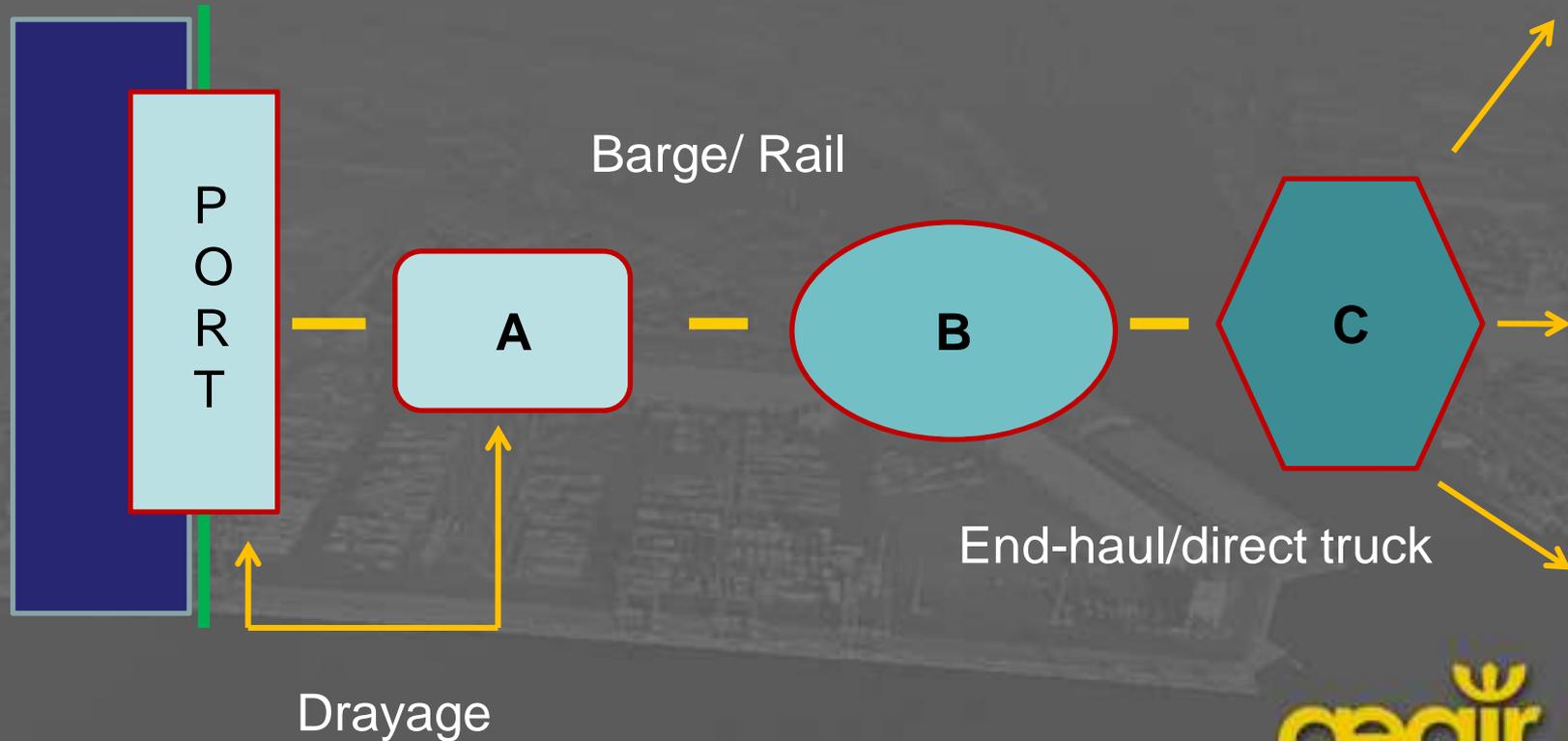


Types and functions of dry ports

A	B	C
Satellite terminal	Load Centre	Transshipment
Near port	Access regional markets	Intermodal connection in hinterland
Allows for functions not profitable at expensive port land	Intermodal warehousing and logistics	
Container transloading	Logistics parks and free trade zones	



Dry ports/inland terminals



It's a real estate play

INLAND TERMINALS – THE BUSINESS MODEL



IT business models

- Intermodal operator
- Real estate developer/landlord – requires large footprints: 100 to 400 hectares
- Each player focuses on their niche:
 - Rail
 - Warehousing: Smart buildings, cool logistics, distribution space, value added services
- Operational advantages for:
 - Drayage
 - Dedicated private roads
 - Better integrate and plan information systems for terminal operators and throughout supply chain



Integrated time

- Intermodalism is key to:
 - Reduce handling costs
 - Manage inventories
 - Diversify gateways
 - Match transport links to fixed points of non-transport supply chain activities
- Inland terminals are key to intermodalism



Ports – now nodes in an ever expanding and integrating global supply chain

- Within present supply chain a weak link - ports' inability to process more throughput faster
- Logistics very efficient industry, excellent leadership; transport is fragmented, no clear leader - vacuum needs to be filled, should port authorities step in?
- 'Just in time' now 'integrated time', requiring more specialised facilities such as 'fast buildings'
- Property at, near and related to ports is key to addressing these issues



**So, which link will your port become
in the supply chain, this?**



Or this?



Infrastructure's massive demand for capital

GLOBAL INFRASTRUCTURE REQUIREMENTS & PORTS

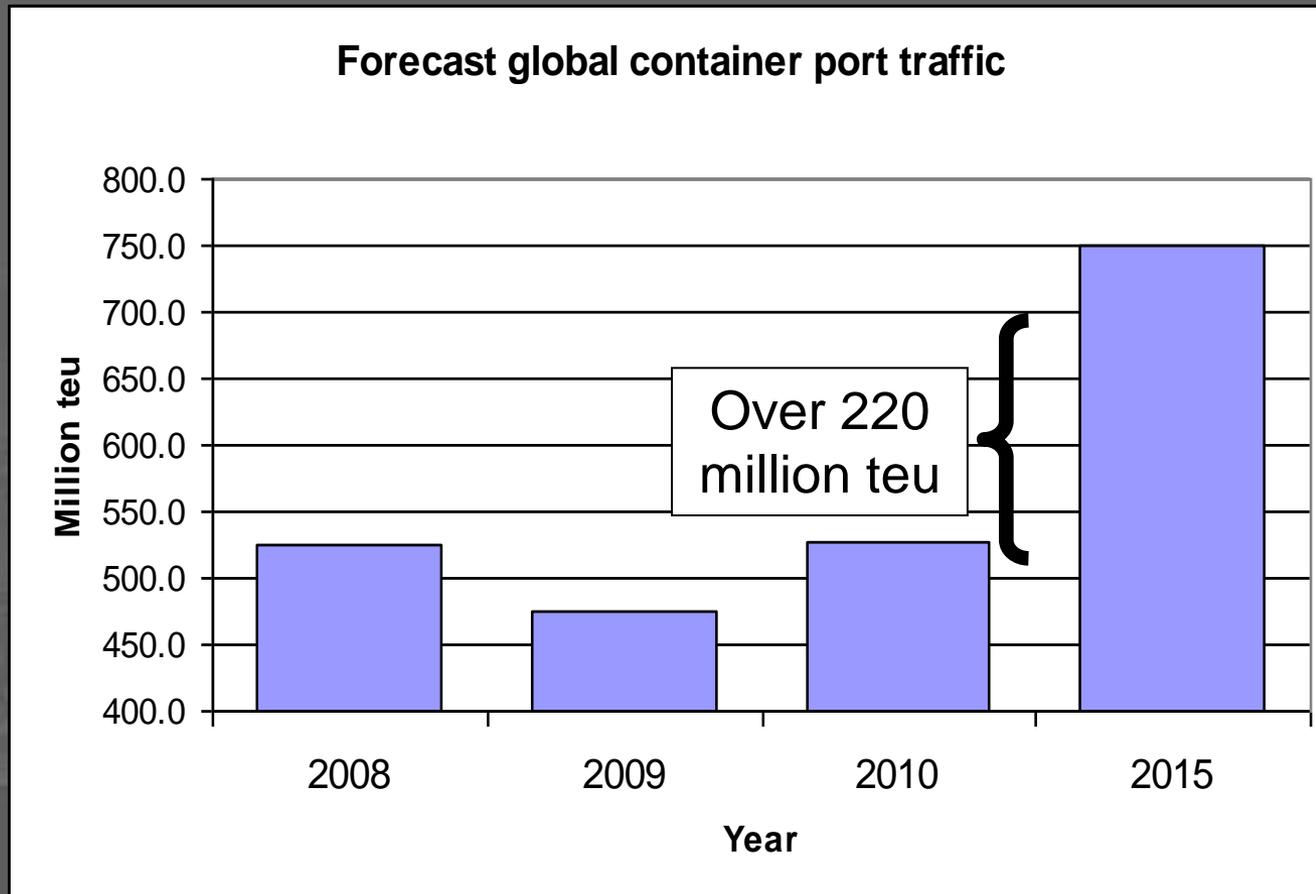


Infrastructure trends and opportunities

- OECD estimates US\$70 trillion required for infrastructure development and improvement – 2030
- Average size of infra fund now US\$3.3b from US\$159m in '03; 'Dry Powder' for 2012 – US\$100b
- Current financial crisis has resulted in less debt opening door for more equity participation
- Although assets are priced at more realistic levels there are also lower return (IRR) expectations as well in the 15%-18% from 18%-20% in the 2006-2008 period



Forecast global demand

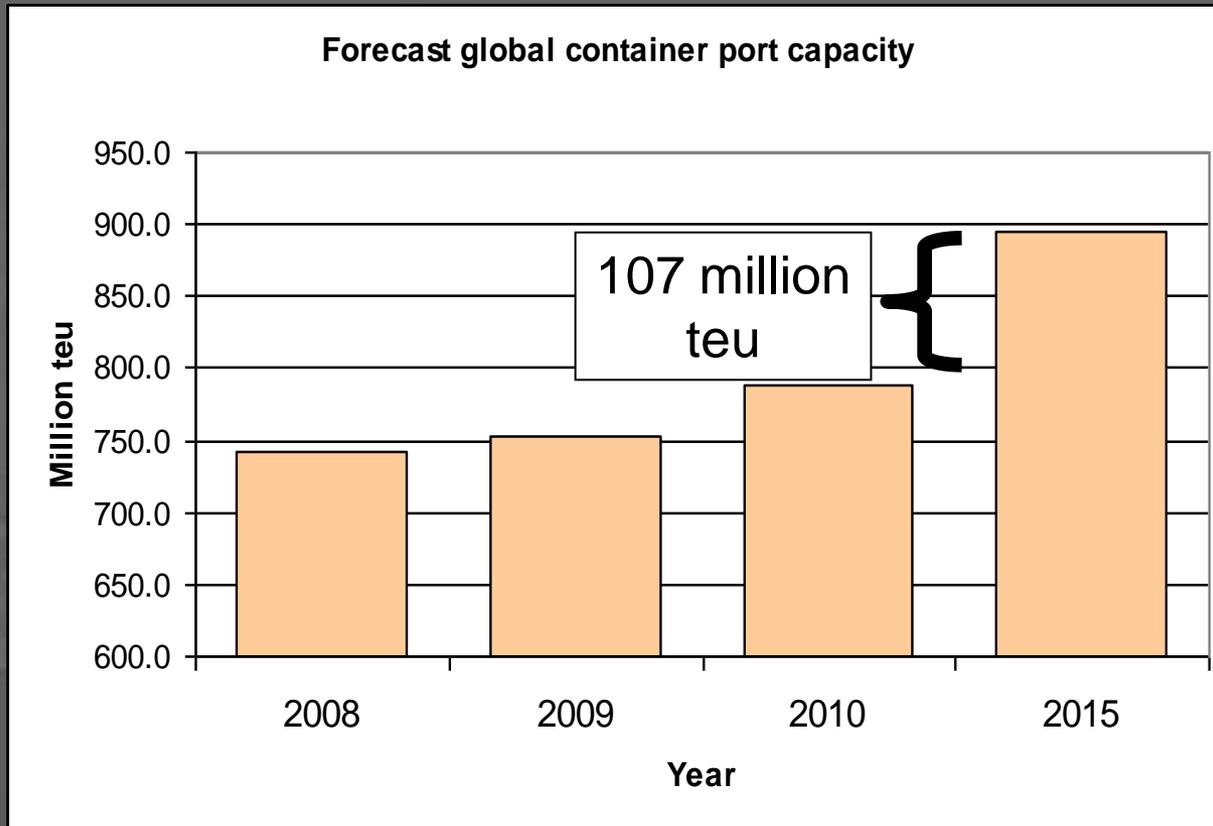


Source: Drewry Shipping Consultants Ltd



But, forecasted global terminal capacity doesn't keep up

Capacity becomes an issue again



Source: Drewry Shipping Consultants Ltd



Privatisation potential is not exhausted yet – need to look at the entire port delivery supply chain to attract capital

Terminal size band (teu throughput)	Total number of terminals	Number of terminals state owned*	State owned % of total terminals in size class
Under 100,000	594	307	52%
100-250k	256	62	24%
250-500k	160	34	21%
500-1million	126	23	18%
Over 1 million	112	20	18%
Global total	1,248	446	36%

Excludes terminals owned or managed by state owned global operators such as PSA and DP World; but includes terminals where government has a majority ownership.

Source: Drewry



Comparative yields for infrastructure investments

Asset segment	Risk	Avg cash yield (yrs 1-5)	Avg leveraged IRR	Capital appreciation potential
Toll roads	Low	4%-9%	8%-12%	Limited
Seaports	Medium	4%-7%	15%-18%	Yes
Merchant power stations	High	4%-12%	15%-25%	Yes

Source: JP Morgan



Moving forward...

OPPORTUNITIES & CONCLUSIONS



Opportunities

- Partner with the private sector to produce port comparative advantages for expansion/modernisation
- Maximisation of port's value and efficiency
- Integration of supply chain, extension of port life cycle, serving changing industry needs
- Secure leadership role for port authority to influence the transport side of the supply chain to increase cargo throughput throughout



Conclusion

The way to your port's growth lies deep

IN-LAND!



*‘Navigating the world of port properties to
maximise your port’s value’*

Thank you



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